

## **REMARKS**

### **Status of the Claims**

Claims 1-4 are now present in this application. Claims 1 and 3 are independent.

Claims 1 and 3 have been amended. Reconsideration of this application, as amended, is respectfully requested.

### **Request for Entry of Response After Final Rejection**

This response should be entered after final rejection because the amendments merely relate to matters of formality, i.e., responding to claim objections by the Examiner.

In the event that this response does not place this application into condition for allowance, the Examiner is requested to enter this response because it places the application into better condition for appeal. Such amendments were not presented at an earlier date in view of the fact that Applicants could not anticipate the Examiner's objection before the Final Office Action was reviewed.

### **Claim Objections**

The Examiner has objected to claims 1 and 3. Particularly, the Examiner asserts that the phrase "groups including" should be changed to --groups includes-- in claim 1, line 6. Further, the Examiner asserts that the phrase "including at least" should be changed to --includes at least-- in claim 3, line 9. Applicants have amended claims 1 and 3 as suggested by the Examiner. Reconsideration and withdrawal of this objection are respectfully requested.

### **Rejections under 35 U.S.C. § 103**

Claims 1-4 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Robotham (US 2004/0100967) in view of admitted prior art ("APA"). This rejection is respectfully traversed.

A complete discussion of the Examiner's rejection is set forth in the Office Action, and is not being repeated here.

Initially, Applicant respectfully reasserts the arguments which were presented in the Amendment filed January 29, 2010 traversing the rejection under 35 U.S.C. § 103(a) based on

Robotham and the APA. Applicant also presents the following comments for the Examiner's consideration.

Summary of Prior Arguments:

The Examiner admits that Robotham does not teach the following subject matter of the independent claims:

- “- an earliest permitted moment, at which a packet can be forwarded, is defined as a greatest value of Valid Time to Send -values of the shaping groups, to which a traffic flow represented by the packet to be forwarded belongs, and*
- as a result of forwarding the packet, the Valid Time to Send -values of the same shaping groups, to which the forwarded packet belongs, are updated, a Valid Time to Send -value of each shaping group expressing an earliest permitted moment, at which a packet belonging under that shaping group can be forwarded without breaking restrictions of speed properties of that shaping group.”*

Thus, the Examiner relies on the APA to remedy these deficiencies.

The APA teaches (emphasis added):

*“Figure 1 shows one way, according to the prior art, of monitoring and limiting the speed properties of a traffic flow. In the following examination that further elucidates the matter, the term speed properties is used to include mean speed (CIR [bit/s]), burst size (CBS [bit]), by which the mean speed can be exceeded temporarily, and momentary speed (PIR [bit/s]). When packets are begun to be transferred past the measurement point (MP) marked in Figure 1 (i.e. when the first bit of the packet being transferred passes the point MP), the values of the variables VTS\_CIR and VTS\_PIR are calculated for the next packet. VTS\_CIR gives the earliest permitted moment in time, when the next packet can be begun to be transferred past MP, in order not to exceed the CIR or the CBS restrictions. Correspondingly, VTS\_PIR gives the earliest permitted moment in time, when the next packet can be begun to be transferred past MP, in order not to exceed the PIR restriction. The equations 1 and 2 show the principle generally used for calculating the VTS\_CIR and the VTS\_PIR values.*

$$VTS\_CIR_{next} = \max(t - CBS/CIR, VTS\_CIR_{prev}) + PKS/CIR, \quad (1)$$

*and*

$$VRS\_PIR_{next} = \max(t, VTS\_PIR_{prev}) + PKS_{prev}/PIR, \quad (2)$$

*in which  $t$  is the time,  $PKS$  is the size of the packet in bits, the sub-index 'next' refers to the next packet and the sub-index 'prev' refers the packet the first bit of which is transferred past point  $MP$  at the moment  $t$ .*

*When all the speed properties are taken into account, the earliest permitted moment ( $VTS$ ), when the next packet can begin to be transferred past point  $MP$ , is obtained from equation 3.*

$$VTS = \max(VTS\_CIR, VTS\_PIR). \quad (3)''$$

It should be noted that each of equations (1)-(3) in the APA above relate to only one traffic flow.

In the rejection, the Examiner asserts that “*Specification, equation 3 on page 3, line 17 teaches that if there are more than one  $VTS$  values, each associated with one restriction on the packet flow, then the greatest  $VTS$  value will be selected*” (Office Action at page 4; emphasis added). This assertion by the Examiner regarding the APA is true, but again, it should be noted that equations (1)-(3) of the APA relate to only one traffic flow. The Examiner continues with “*Applying the same rule, when there are more than one  $VTS$  values, each associated with one shaping group then the greatest  $VTS$  value will be selected*” (*id.* at page 5) However, nothing in the cited prior art and the APA would teach or suggest to a person ordinarily skilled in the art to apply the rule indicated in equations (1)-(3), which are related to a single traffic flow, to a situation in which:

- digital information is transferred as constant or variable-length packets as at least two separate traffic flows, the traffic flows forming an aggregate flow,
- at least two shaping groups are defined, each shaping group being a portion of the aggregate flow and includes at least one of the traffic flows and at least one of the shaping groups including at least two of the traffic flows, and
- restrictions of speed properties for the at least two shaping groups are set,

in the same manner as recited in the independent claims of the present application.

If the APA is applied for providing shaping to e.g. the system disclosed in Fig. 3A of Robotham, this would lead to a system similar to the prior art system shown in Fig. 2 of the present application, or to the prior art system shown in Fig. 3 of the present application. For instance, if a person of ordinary skill in the art wanted to limit the speeds of the individual traffic flows ( $C1/RT$ ,  $C2/RT$ ,  $C1/nRT$ , ...) illustrated in Fig. 3A of Robotham, he would arrive, by

applying the APA, at a system similar to that shown in Fig. 2 of the present application<sup>1</sup>. On the other hand, if the person of ordinary skill in the art wanted to limit the speed of a portion (e.g., 310A) of the aggregate (318) that contains more than one traffic flow (307A, 307B) in Fig. 3A of Robotham, by applying the APA, he would arrive at a system similar to that shown in Fig. 3 of the present application. Neither of the prior art systems shown in Figs. 2 and 3 of the present application involve the technical features recited in the independent claims of the present application.

Neither the APA nor Robotham discloses any teaching that would make possible, without the drawbacks related to the prior art system shown in Fig. 3 of the present application, to control a sum rate of two or more traffic flows wherein these two or more traffic flows constitute a portion of an aggregate of these and other traffic flows as can be done with the technical solution recited in the independent claims of the present application.

Hence, on the basis of the above presented analysis, the independent claims of the present application involve an inventive step over the APA and the cited prior art, and thus the 35 USC §103 claim rejections should be withdrawn.

#### Rebuttal of Examiner's Response to Arguments:

In the "Response to Arguments" section starting on page 10 of the Office Action, the Examiner refers to the following text passages on page 2 of the description of the present application (emphasis added):

*" VTS\_CIR The earliest moment in time, after which the next packet representing a specific traffic flow, or shaping group may be forwarded, in order that the greatest permitted mean speed and/or the greatest permitted burst size will not be exceeded,*

*VTS\_PIR The earliest moment in time, after which the next packet representing a specific traffic flow, or shaping group may be forwarded, in order that the greatest permitted momentary speed will not be exceeded."*

The Examiner seems to interpret the above text passages as simply being part of the APA. Applicant respectfully disagrees. The above text passages are from a list of abbreviations

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<sup>1</sup> Please note that the multiplexer of Fig. 2 of the present application would correspond to the scheduler arrangement encircled with a dashed-line in Fig. 3A of Robotham.

and their explanations that are used in both the APA and the present invention. The list of the abbreviations and their explanations is given under the following introductory text (page 1 of the description):

*“In this publication, the following abbreviations are used in the depiction of both the prior art and the invention:”* (emphasis added).

In other words, the aforementioned passage indicates that the abbreviation “*VTS PIR*,” as used in the APA (i.e., in equations (1)-(3)) refers to the earliest moment in time after which the next packet representing a specific traffic flow may be forwarded; while the same abbreviation, as used to describe the present invention, refers to the earliest moment in time after which the next packet representing a traffic flow or shaping group may be forwarded. This must necessarily be the case, since the specifically describes the APA as being directed to monitoring and limiting the speed properties of a single traffic flow (see, e.g., original specification at page 2, lines 24-25; page 4, lines 25-27).

Thus, it is improper for the Examiner to conclude from the statement, “*VTS PIR - The earliest moment in time, after which the next packet representing a specific traffic flow, or shaping group may be forwarded...*,” that the VTS values used in APA refers to a shaping group rather than a single traffic flow. Such conclusion is unjustified since the abovementioned list of abbreviations and their explanations of pages 1 and 2 of the specification is not specifically directed to APA – it also lists abbreviations and explanations of the present invention.

In other words, there are no grounds for any conclusion that the APA would teach or even suggest to a person of motivate to apply the rule indicated in equations (1)-(3), which is related to a single traffic flow, to a situation in which:

- digital information is transferred as constant or variable-length packets as at least two separate traffic flows, the traffic flows forming an aggregate flow,
- at least two shaping groups are defined, each shaping group being a portion of the aggregate flow and includes at least one of the traffic flows and at least one of the shaping groups including at least two of the traffic flows, and
- restrictions of speed properties for the at least two shaping groups are set,

in the same manner as recited in independent claims 1 and 3.

**Rejection Should be Withdrawn:**

Hence, at least for the reasons explained above, independent claims 1 and 3 recite a combination of elements which are neither disclosed nor made obvious by Robotham and APA, whether considered separately or in obvious combination. Therefore, Applicant respectfully requests the Examiner to reconsider and withdraw the rejection of claims 1 and 3.

With regard to dependent claims 2 and 4, Applicants submit that these claims depend from independent claims 1 and 3 which are allowable for reasons set forth above. Therefore, claims 2 and 4 are allowable at least by virtue of their dependence from claims 1 and 3. Reconsideration and allowance thereof are respectfully requested.

**Additional Cited References**

Since the remaining references cited by the Examiner have not been utilized to reject the claims, but have merely been cited to show the state of the art, no comment need be made with respect thereto.

**Conclusion**

All of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Applicant therefore respectfully requests that the Examiner reconsider all presently outstanding rejections and that they be withdrawn. It is believed that a full and complete response has been made to the outstanding Office Action, and as such, the present application is in condition for allowance.

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact Jason W. Rhodes (Registration No. 47,305) at the telephone number of the undersigned below to conduct an interview in an effort to expedite prosecution in connection with the present application.

If necessary, the Director is hereby authorized in this, concurrent, and future replies to charge any fees required during the pendency of the above-identified application or credit any overpayment to Deposit Account No. 02-2448.

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Respectfully submitted,

By  #417,305

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